

CLAIMS

I claim:

1. An isolated polypeptide, comprising an amino acid sequence that is at least 70% identical to a reference amino acid sequence selected from the group consisting of: the amino acid sequence of SEQ ID NO:2, amino acid residues 86 to 140 of SEQ ID NO:2, and amino acid residues 213 to 269 of SEQ ID NO:2, wherein the isolated polypeptide specifically binds with an antibody that specifically binds with a polypeptide consisting of the amino acid sequence of SEQ ID NO:2.

2. The isolated polypeptide of claim 1, wherein the isolated polypeptide comprises an amino acid sequence that is at least 80% identical to the reference amino acid sequence.

3. The isolated polypeptide of claim 1, wherein the isolated polypeptide has an amino acid sequence that is at least 90% identical to the reference amino acid sequence.

4. The isolated polypeptide of claim 1, comprising either amino acid residues 86 to 140 of SEQ ID NO:2 or amino acid residues 213 to 269 of SEQ ID NO:2.

5. The isolated polypeptide of claim 1, comprising the amino acid sequence of SEQ ID NO:2.

6. The isolated polypeptide of claim 1, wherein the polypeptide is a serine protease.

7. An isolated nucleic acid molecule, wherein the nucleic acid molecule is selected from the group consisting of: (a) a nucleic acid molecule encoding the amino acid sequence of SEQ ID NO:2, and (b) a nucleic acid molecule that remains hybridized following stringent wash conditions to a nucleic acid molecule consisting of a nucleotide sequence selected from the group consisting of: nucleotides 256 to 420 of SEQ ID NO:1, nucleotides 637 to 807 of SEQ ID NO:1, the complement of nucleotides 256 to 420 of SEQ ID NO:1, and the complement of nucleotides 637 to 807 of SEQ ID NO:1.

8. The isolated nucleic acid molecule of claim 7, wherein any difference between the amino acid sequence encoded by the nucleic acid molecule and the corresponding amino acid sequence of SEQ ID NO:2 is due to a conservative amino acid substitution.

9. The isolated nucleic acid molecule of claim 7, comprising the nucleotide sequence of SEQ ID NO:1.

10. The isolated nucleic acid molecule of claim 7, wherein the nucleic acid molecule comprises a nucleotide sequence consisting of either nucleotides 256 to 420 of SEQ ID NO:1, or nucleotides 637 to 807 of SEQ ID NO:1.

11. A vector, comprising the isolated nucleic acid molecule of claim 9.

12. An expression vector, comprising the isolated nucleic acid molecule of claim 9, a transcription promoter, and a transcription terminator, wherein the promoter is operably linked with the nucleic acid molecule, and wherein the nucleic acid molecule is operably linked with the transcription terminator.

13. A recombinant host cell comprising the expression vector of claim 12, wherein the host cell is selected from the group consisting of bacterium, yeast cell, fungal cell, insect cell, mammalian cell, avian cell, and plant cell.

14. A method of using the expression vector of claim 12 to produce Zfaix1 protein, comprising culturing recombinant host cells that comprise the expression vector and that produce the Zfaix1 protein.

15. The method of claim 14, further comprising isolating the Zfaix1 protein from the cultured recombinant host cells.

16. An antibody or antibody fragment that specifically binds with the polypeptide of claim 5.

17. A method of detecting the presence of *Zfaix1* gene expression in a biological sample, comprising:

(a) contacting a *Zfaix1* nucleic acid probe under hybridizing conditions with either (i) test RNA molecules isolated from the biological sample, or (ii) nucleic acid molecules synthesized from the isolated RNA molecules, wherein the probe consists of a nucleotide sequence comprising a portion of the nucleotide sequence of the nucleic acid molecule of claim 9, or complements thereof, and

(b) detecting the formation of hybrids of the nucleic acid probe and either the test RNA molecules or the synthesized nucleic acid molecules,

wherein the presence of the hybrids indicates the presence of *Zfaix1* RNA in the biological sample.

18. A method of detecting the presence of *Zfaix1* in a biological sample, comprising:

(a) contacting the biological sample with an antibody, or an antibody fragment, of claim 16, wherein the contacting is performed under conditions that allow the binding of the antibody or antibody fragment to the biological sample, and

(b) detecting any of the bound antibody or bound antibody fragment.

19. An anti-idiotypic antibody, or anti-idiotypic antibody fragment, that specifically binds with the antibody or antibody fragment of claim 16.

20. A fusion protein, comprising the polypeptide of claim 4.